AUG 2 0 2001

TECH CENTER 1600/2900

SEQUENCE LISTING <110> Gendron, Robert L. Paradis, Helene

- <120> Inhibition of Bone Tumor Formation Using Antisense cDNA Therapy
- <130> 10872/518
- <140> US 09/836,410
- <141> 2001-04-17
- <150> US 60/197,977
- <151> 2000-04-17
- <160> 4
- <170> PatentIn version 3.1
- <210> 1
- <211> 593
- <212> PRT
- <213> Homo sapiens
- <400> 1
- Met Leu Glu Arg Leu Lys Ile Tyr Glu Glu Ala Trp Thr Lys Tyr Pro 1 5 10 15
- Arg Gly Leu Val Pro Arg Lys Leu Pro Leu Asn Phe Leu Ser Gly Glu
 20 25 30
- Lys Phe Lys Glu Cys Leu Asp Arg Phe Leu Arg Met Asn Phe Ser Lys 35 40 45
- Gly Cys Pro Pro Val Phe Asn Thr Leu Arg Ser Leu Tyr Arg Asp Lys 50 55 60
- Glu Lys Val Ala Ile Val Glu Glu Leu Val Val Gly Tyr Glu Thr Ser 65 70 75 80
- Leu Lys Ser Cys Arg Leu Phe Asn Pro Asn Asp Asp Gly Lys Glu Glu 85 90 95
- Pro Pro Thr Thr Leu Leu Trp Val Gln Tyr Tyr Leu Ala Gln His Tyr 100 105 110

Asp Lys Ile Gly Gln Pro Ser Ile Ala Leu Glu Tyr Ile Asn Thr Ala Ile Glu Ser Thr Pro Thr Leu Ile Glu Leu Phe Leu Val Lys Ala Lys Ile Tyr Lys His Ala Gly Asn Ile Lys Glu Ala Ala Arg Trp Met Asp Glu Ala Gln Ala Leu Asp Thr Ala Asp Arg Phe Ile Asn Ser Lys Cys Ala Lys Tyr Met Leu Lys Ala Asn Leu Ile Lys Glu Ala Glu Glu Met Cys Ser Lys Phe Thr Arg Glu Gly Thr Ser Ala Val Glu Asn Leu Asn Glu Met Gln Cys Met Trp Phe Gln Thr Glu Cys Ala Gln Ala Tyr Lys Ala Met Asn Lys Phe Gly Glu Ala Leu Lys Lys Cys His Glu Ile Glu Arg His Phe Ile Glu Ile Thr Asp Asp Gln Phe Asp Phe His Thr Tyr Cys Met Arg Lys Ile Thr Leu Arg Ser Tyr Val Asp Leu Leu Lys Leu Glu Asp Val Leu Arg Gln His Pro Phe Tyr Phe Lys Ala Ala Arg Ile Ala Ile Glu Ile Tyr Leu Lys Leu His Asp Asn Pro Leu Thr Asp Glu Asn Lys Glu His Glu Ala Asp Thr Ala Asn Met Ser Asp Lys Glu Leu

Lys Lys Leu Arg Asn Lys Gln Arg Arg Ala Gln Lys Lys Ala Gln Ile

Glu Glu Glu Lys Lys Asn Ala Glu Lys Glu Lys Pro Gln Arg Asn Pro 340 345 350

Lys Lys Lys Asp Asp Asp Glu Glu Ile Gly Gly Pro Lys Glu 355 360 365

Glu Leu Ile Pro Glu Lys Leu Ala Lys Val Glu Thr Pro Leu Glu Glu 370 375 380

Ala Ile Lys Phe Leu Thr Pro Leu Lys Asn Leu Val Lys Asn Lys Ile 385 390 395 400

Glu Thr His Leu Phe Ala Phe Glu Ile Tyr Phe Arg Lys Glu Lys Phe 405 410 415

Leu Leu Met Leu Gln Ser Val Lys Arg Ala Phe Ala Ile Asp Ser Ser 420 425 430

His Pro Trp Leu His Glu Cys Met Ile Arg Leu Phe His Ser Val Cys
435
440
445

Glu Ser Lys Asp Leu Pro Glu Thr Val Arg Thr Val Leu Lys Gln Glu 450 455 460

Met Asn Arg Leu Phe Gly Ala Thr Asn Pro Lys Asn Phe Asn Glu Thr 465 470 475 480

Phe Leu Lys Arg Asn Ser Asp Ser Leu Pro His Arg Leu Ser Ala Ala 485 490 495

Lys Met Val Tyr Tyr Leu Asp Ser Ser Ser Gln Lys Arg Ala Ile Glu 500 505 510

Leu Ala Thr Thr Leu Asp Gly Ser Leu Thr Asn Arg Asn Leu Gln Thr 515 520 525

Cys Met Glu Val Leu Glu Ala Leu Cys Asp Gly Ser Leu Arg Asp Cys 530 535 540

Lys Glu Ala Ala Glu Ala Tyr Arg Ala Ser Cys His Lys Leu Phe Pro 545 550 555 560

Tyr Ala Leu Ala Phe Met Pro Pro Gly Tyr Glu Glu Asp Met Lys Ile 565 570 575

Thr Val Asn Gly Asp Ser Ser Ala Glu Thr Glu Glu Leu Ala Asn Glu 580 585 590

Ile

<210> 2

<211> 3418

<212> DNA

<213> Homo sapiens

<400> 2

caagtaacac ccgcaagatg atagaggatc tgcagagtga gcatcatgga ttggttatgc 60 tttaccattt attagaagac tatgaaatgg cagcaaaaat tttagaagag tttaggaaaa 120 cacagcagac atctcctgat aaagtggatt atgaatatag tgaactcctc ttatatcaga 180 atcaagttct tcgggaagca ggtctttata gagaagccct ggaacatctt tgtacctatg 240 aaaagcagat ttgtgataaa cttgctgttg aagaaaccaa aggggaactt ctgttgcagt 300 tgtgtcgttt ggaagatgct gctgacgttt atagaggatt acaagagagg aatcctgaaa 360 attgggccta ttacaaaggc ttagaaaaag cactgaagcc agctaatatg ttagaacggc 420 taaaaatata tgaggaagcc tggactaaat accccagggg actcgtgcca agaaagctgc 480 ccttaaactt tttatctgga gagaagttta aggagtgttt ggataggttc ctaaggatga 540 atttcagcaa gggctgtcca cctgtcttca ataccttgag gtctttatac agagataaag 600 agaaggtggc aatcgtagaa gaactagtag ttggttatga aacttctcta aaaagttgtc 660 gcctatttaa ccccaatgat gatggaaagg aggaacctcc aaccacatta ctttgggtcc 720 agtactattt ggcacagcat tatgataaaa ttggtcagcc atccattgct ctggaataca 780 taaatactgc aattgaaagt acaccaacat tgatagaact ctttcttgta aaagctaaaa 840 tctataagca tgctgggaat attaaagaag ctgccaggtg gatggatgaa gcccaggccc 900 tggacacagc agacagattt attaattcca agtgtgcaaa atacatgtta aaagccaacc 960 tgattaaaga ggctgaagaa atgtgttcca agtttacgag ggaaggaact tcagcggtag 1020 agaacctgaa tgaaatgcag tgtatgtggt tccagacaga gtgtgctcag gcatacaaag 1080 caatgaacaa atttggtgaa gcacttaaga aatgtcatga aattgagaga cattttatag 1140 aaatcaccga tgaccagttt gactttcata catactgtat gaggaagatc acccttagat 1200

catatgtgga cttattaaaa ctagaagatg tacttcgaca gcatccattt tacttcaaag 1260 cagcgagaat tgctattgag atctatttga agcttcatga caaccctctg acagatgaga 1320 acaaagaaca cgaggctgat acagcaaaca tgtctgacaa agagctaaag aaactgcgta 1380 ataaacaaag aagagctcaa aagaaagccc agattgaaga agagaaaaaa aatgccgaaa 1440 aagaaaagcc gcaacggaat ccgaaaaaga aaaaggatga tgatgacgaa gaaattggag 1500 gccccaaaga agagcttatc cctgagaaac tggccaaggt tgaaactcca ttggaagaag 1560 ctattaagtt tttaacacca ttgaagaact tggtgaagaa caagatagaa actcatcttt 1620 ttgcctttga gatctacttt aggaaagaaa agtttctttt gatgctacaa tcagtaaagc 1680 gggcatttgc tattgattct agtcatccct ggcttcatga gtgcatgatt cgactctttc 1740 attctgtgtg tgaaagtaaa gacttacccg aaacagttag aacagtatta aaacaagaaa 1800 tgaatcgtct ttttggagca acaaatccaa agaattttaa tgaaaccttt ctgaaaagga 1860 attctgattc attgccacat agattatcag ctgccaaaat ggtatattat ttagattctt 1920 ctagtcaaaa acgagcaata gagctggcga caacacttga tggatccctc accaacagaa 1980 accttcagac ttgcatggaa gtgttggaag ccttgtgtga tggtagccta cgagactgta 2040 aagaagctgc cgaagcctac agagcaagtt gtcataagct tttcccttat gctttggctt 2100 tcatgcctcc tggatacgaa gaggatatga agatcacagt gaacggagat agttctgcag 2160 aaacggaaga actggccaat gaaatctgaa catcattaaa caagcaaatg gaatgacttt 2220 ggaccatatc tagtgtataa tatttttgtc acgcacctgc tgcattgctc ttacttacac 2280 agaatgagag gagtaaatgt tettgeette aaatagtett aegtttttta teetgetgaa 2340 aactatatat aaaatatcta acattacagg atataggttc agtttcttaa aaaattaaaa 2400 gctgctaaaa ttgaggggtt taaaagaaaa aaaaatccgt atcctattcc taccttccct 2460 tcccatgttt ttaactaatt tatataaaat ctggaggcta taacagctaa catagcaggt 2520 gtgtggcaga aatattactt taaatttgtc ttgtgagatt ttgctatatc tcagacagca 2580 taaataaatg ctgttttagc actggattct ttcactgagc acaaagagtt gttggggctt 2640 tagcatctgc ctgattctgt tacggggttg gtgattgacc ataggaagta tgcaatgtga 2700 atcactgtgt acagagccgt ctacaacaca tgcttgacgt tgtagagact gggacacata 2760 gctaccaagc ggattaagtg aaacctagaa ggtgttcagt acgtgtgttg tgtttccaaa 2820 attcactgta catgatcagt ttggtgttct tgtaccacag tttttaaccg aaggaaccag 2880

ttggaacaat ctcaatttaa ctaaaacttg aagaactaaa ataacaatgc aaacctttat 2940 cattgttttg gccaaacttg ttaaaactgt aatgcaagaa ccaaatgcac tgtgatgtgg 3000 caccaactaa ttatgcaagc atgaattttt cacctgagag tgaaaaaaga aaactctacc 3060 atggettgaa gttacaggag cagaacteet gaetaecatt etatgaetga tgaagagaet 3120 aatatctaaa acctcagcag gccttgttca cgatatgcag aaaaagtgct gcagtttaga 3180 tacctctggg aacttttcca cagtgtcaca ggtttgtaat acttgaagcc cttcatttct 3240 aagaatatat ttctcgctca gttgtttcag gcaagcccaa gactttgtaa tttttaaagg 3300 gcccaagatt ttttttcaa taacagacca gcttcttttt cctgcagtta caaatgtaat 3360 ttctttttt ttttgttgtc aaacataagg taccaaatat gcaataaatt gttttggg 3418

<210> 3

<211> 1413

<212> DNA

<213> Homo sapiens

<400> 3

tctgggcttt cttttgagct cttctttgtt tattacgcag tttctttagc tctttgtcag 60 acatgtttgc tgtatcagcc tcgtgttctt tgttctcatc tgtcagaggg ttgtcatgaa 120 gcttcaaata gatctcaata gcaattctcg ctgctttgaa gtaaaatgga tgctgtcgaa 180 gtacatette tagttttaat aagteeacat atgatetaag ggtgatette eteatacagt 240 atgtatgaaa gtcaaactgg tcatcggtga tttctataaa atgtctctca atttcatgac 300 atttcttaag tgcttcacca aatttgttca ttgctttgta tgcctgagca cactctgtct 360 ggaaccacat acactgcatt tcattcaggt tctctaccgc tgaaqttcct tccctcqtaa 420 acttggaaca catttcttca gcctctttaa tcaggttggc ttttaacatg tattttgcac 480 acttggaatt aataaatctg tctgctgtgt ccagggcctg ggcttcatcc atccacctgg 540 cagcttcttt aatattccca gcatgcttat agattttagc ttttacaaga aagagttcta 600 tcaatgttgg tgtactttca attgcagtat ttatgtattc cagagcaatg gatggctgac 660 caattttatc ataatgctgt gccaaatagt actggaccca aagtaatgtg gttggaggtt 720 cctcctttcc atcatcattg gggttaaata ggcgacaact ttttagagaa gtttcataac 780 caactactag ttcttctacg attgccacct tctctttatc tctgtataaa gacctcaagg 840 tattgaagac aggtggacag ceettgetga aatteateet taggaaceta tecaaacaet 900 ccttaaactt ctctccagat aaaaagttta agggcagctt tcttggcacg agtcccctgg 960

ggtatttagt ccaggettee teatatattt ttageegtte taacatatta getggettea 1020 1080 gtgctttttc taagcctttg taataggccc aattttcagg attcctctct tgtaatcctc tataaacgtc agcagcatct tccaaacgac acaactgcaa cagaagttcc cctttggttt 1140 cttcaacagc aagtttatca caaatctgct tttcataggt acaaagatgt tccagggctt 1200 ctctataaag acctgcttcc cgaagaactt gattctgata taagaggagt tcactatatt 1260 cataatccac tttatcagga gatgtctgct gtgttttcct aaactcttct aaaatttttg 1320 ctgccatttc atagtcttct aataaatggt aaagcataac caatccatga tgctcactct 1380 gcagatcctc tatcatcttg cgggtgttac ttg 1413

<210> 4

<211> 3418

<212> DNA

<213> Homo sapiens

<400> 4

cccaaaacaa tttattgcat atttggtacc ttatgtttga caacaaaaaa aaaaagaaat 60 120 tacatttgta actgcaggaa aaagaagctg gtctgttatt gaaaaaaaa tcttgggccc tttaaaaatt acaaagtett gggettgeet gaaacaaetg agegagaaat atattettag 180 aaatgaaggg cttcaagtat tacaaacctg tgacactgtg gaaaagttcc cagaggtatc 240 300 taaactgcag cactttttct gcatatcgtg aacaaggcct gctgaggttt tagatattag tctcttcatc agtcatagaa tggtagtcag gagttctgct cctgtaactt caagccatgg 360 tagagttttc ttttttcact ctcaggtgaa aaattcatgc ttgcataatt agttggtgcc 420 acatcacagt gcatttggtt cttgcattac agttttaaca agtttggcca aaacaatgat 480 aaaggtttgc attgttattt tagttcttca agttttagtt aaattgagat tgttccaact 540 ggttccttcg gttaaaaact gtggtacaag aacaccaaac tgatcatgta cagtgaattt 600 tggaaacaca acacacgtac tgaacacctt ctaggtttca cttaatccgc ttggtagcta 660 720 tgtgtcccag tctctacaac gtcaagcatg tgttgtagac ggctctgtac acagtgattc acattgcata cttcctatgg tcaatcacca accccgtaac agaatcaggc agatgctaaa 780 gccccaacaa ctctttgtgc tcagtgaaag aatccagtgc taaaacagca tttatttatg 840 ctgtctgaga tatagcaaaa tctcacaaga caaatttaaa gtaatatttc tgccacacac 900 ctgctatgtt agctgttata gcctccagat tttatataaa ttagttaaaa acatgggaag 960

ggaaggtagg aataggatac ggattttttt ttcttttaaa cccctcaatt ttagcagctt 1020 ttaatttttt aagaaactga acctatatcc tgtaatgtta gatattttat atatagtttt 1080 cagcaggata aaaaacgtaa gactatttga aggcaagaac atttactcct ctcattctgt 1140 1200 gtaagtaaga gcaatgcagc aggtgcgtga caaaaatatt atacactaga tatggtccaa agtcattcca tttgcttgtt taatgatgtt cagatttcat tggccagttc ttccgtttct 1260 gcagaactat ctccgttcac tgtgatcttc atatcctctt cgtatccagg aggcatgaaa 1320 gccaaagcat aagggaaaag cttatgacaa cttgctctgt aggcttcggc agcttcttta 1380 cagtotogta ggotaccato acacaaggot tocaacactt coatgoaagt otgaaggttt 1440 ctgttggtga gggatccatc aagtgttgtc gccagctcta ttgctcgttt ttgactagaa 1500 gaatctaaat aatataccat tttggcagct gataatctat gtggcaatga atcagaattc 1560 1620 cttttcagaa aggtttcatt aaaattcttt ggatttgttg ctccaaaaag acgattcatt 1680 tettgtttta atactgttet aactgttteg ggtaagtett taettteaca cacagaatga aagagtcgaa tcatgcactc atgaagccag ggatgactag aatcaatagc aaatgcccgc 1740 tttactgatt gtagcatcaa aagaaacttt tctttcctaa agtagatctc aaaggcaaaa 1800 agatgagttt ctatcttgtt cttcaccaag ttcttcaatg gtgttaaaaa cttaatagct 1860 tettecaatg gagttteaac ettggeeagt tteteaggga taagetette tttggggeet 1920 ccaatttett egteateate atcetttte ttttteggat teegttgegg ettttettt 1980 2040 teggeatttt ttttetette tteaatetgg getttetttt gagetettet ttgtttatta cgcagtttct ttagctcttt gtcagacatg tttgctgtat cagcctcgtg ttctttgttc 2100 2160 tcatctgtca gagggttgtc atgaagcttc aaatagatct caatagcaat tctcgctgct ttgaagtaaa atggatgctg tcgaagtaca tcttctagtt ttaataagtc cacatatgat 2220 2280 ctaagggtga tcttcctcat acagtatgta tgaaagtcaa actggtcatc ggtgatttct ataaaatgtc tctcaatttc atgacatttc ttaagtgctt caccaaattt gttcattgct 2340 2400 ttgtatgcct gagcacactc tgtctggaac cacatacact gcatttcatt caggttctct accyctgaag ttccttccct cytaaactty gaacacattt cttcaycctc tttaatcayg 2460 ttggctttta acatgtattt tgcacacttg gaattaataa atctgtctgc tgtgtccagg 2520 gcctgggctt catccatcca cctggcagct tctttaatat tcccagcatg cttatagatt 2580 ttagctttta caagaaagag ttctatcaat gttggtgtac tttcaattgc agtatttatg 2640 tattccagag caatggatgg ctgaccaatt ttatcataat gctgtgccaa atagtactgg 2700

acccaaagta	atgtggttgg	aggttcctcc	tttccatcat	cattggggtt	aaataggcga	2760
caactttta	gagaagtttc	ataaccaact	actagttctt	ctacgattgc	caccttctct	2820
ttatctctgt	ataaagacct	caaggtattg	aagacaggtg	gacagccctt	gctgaaattc	2880
atccttagga	acctatccaa	acactcctta	aacttctctc	cagataaaaa	gtttaagggc	2940
agctttcttg	gcacgagtcc	cctggggtat	ttagtccagg	cttcctcata	tatttttagc	3000
cgttctaaca	tattagctgg	cttcagtgct	ttttctaagc	ctttgtaata	ggcccaattt	3060
tcaggattcc	tctcttgtaa	tcctctataa	acgtcagcag	catcttccaa	acgacacaac	3120
tgcaacagaa	gttccccttt	ggtttcttca	acagcaagtt	tatcacaaat	ctgcttttca	3180
taggtacaaa	gatgttccag	ggcttctcta	taaagacctg	cttcccgaag	aacttgattc	3240
tgatataaga	ggagttcact	atattcataa	tccactttat	caggagatgt	ctgctgtgtt	3300
ttcctaaact	cttctaaaat	ttttgctgcc	atttcatagt	cttctaataa	atggtaaagc	3360
ataaccaatc	catgatgctc	actctgcaga	tcctctatca	tettgegggt	gttacttg	3418

CINlibrary/1087682.1